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A Profiling Float System in the Origins of the Kuroshio and Mindanao Current

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LONG-TERM GOAL

The long-term goal of this work is to improve and validate techniques for observing energetic western boundary currents. In this DURIP, we plan to acquire a profiling float system consisting of 20 newly developed SOLO-II floats. The deployment of these floats in the Origins of the Kuroshio and Mindanao Current (OKMC) DRI is in service of this goal.

OBJECTIVES

The overarching objective of OKMC is to quantify the processes leading to the bifurcation of the NEC into the northward flowing Kuroshio and the southward Mindanao Current. As these are the dominant currents of the region, the improved dynamical understanding should lead directly to better predictions. The technical objective is to demonstrate the capabilities of a new generation of profiling float.

APPROACH

The SOLO-II float system will be deployed in the NEC from a volunteer ship. Data will be made available in real time to scientists involved in the project, and to the Naval Oceanographic Office for use in assimilating models. Analysis will focus on the dynamics of the currents in the western Pacific, with an eye towards improving predictability.

WORK COMPLETED

The order for SOLO-II float system has been placed, with delivery scheduled in several months. Deployment will take place off the Japanese R/V Mirai during the latter half of 2012. We had a successful deployment of a 10 float system in August from the same vessel, so we look forward to similar success next year. Data is being made available to Argo, which in turn makes the data publicly available on their website, and forwards the data to GTS for operational modeling centers such as NAVO. An example of the data from one of these floats is shown in Figure 1.

RESULTS

As the floats to be purchased through this DURIP have not yet been deployed, we have no results to report.

IMPACT/APPLICATIONS

This project will mark one of the first uses of a new generation of profiling floats, with significantly improved capabilities for navigation, communication, and control. The demonstration of this technology in this ambitious program will set the stage for expanded use of actively controlled floats. A particular goal is the use of float observations as input to data assimilating models, leading to improved predictions of ocean currents.

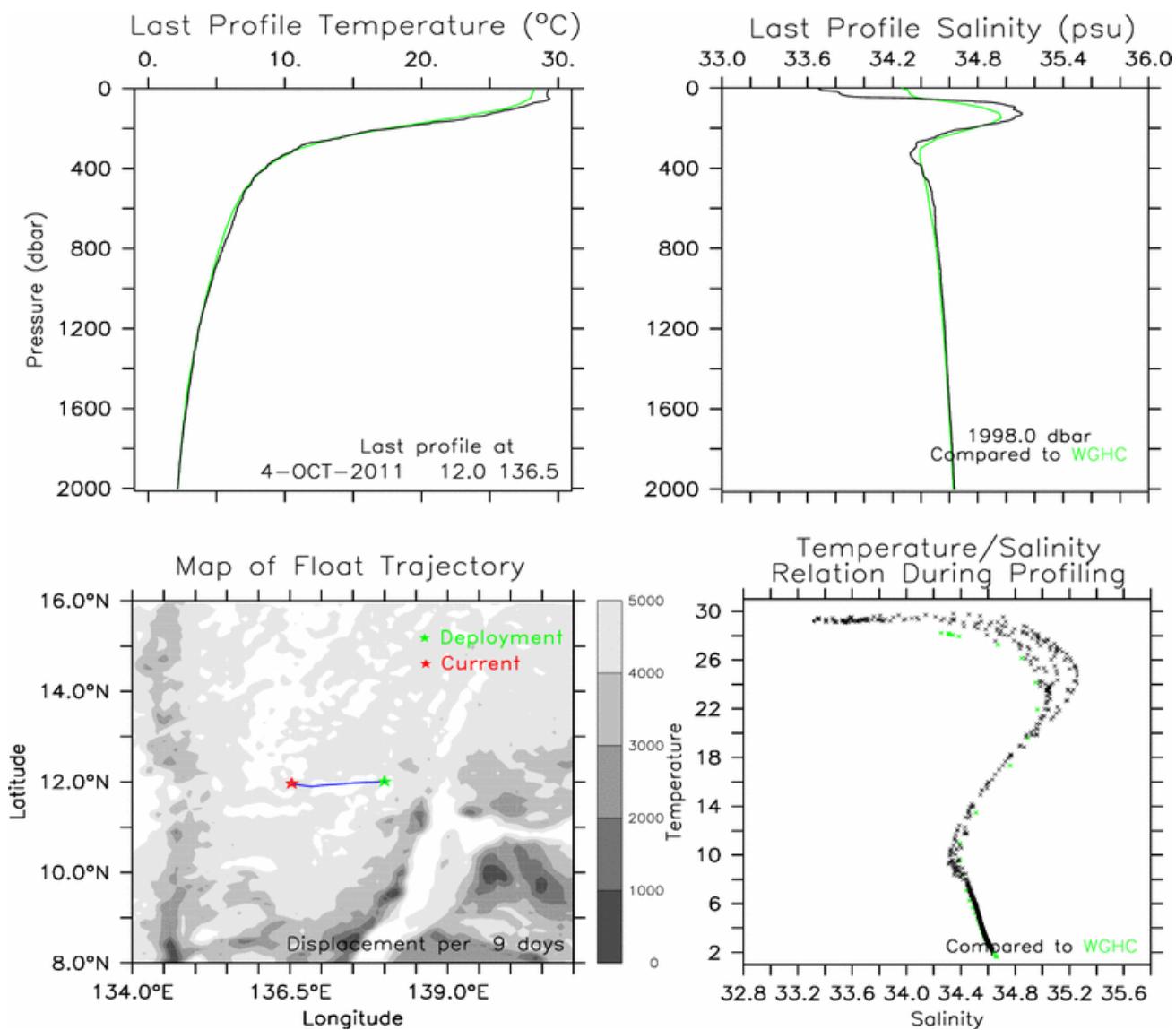


Figure 1. Data from a SOLO-II float deployed in August 2011.